

alike.” (Emphasis added) Further, beginning at line 12, the specification sets out that Figure 1 is an exploded assembly view of a biosensor and Figure 2 is a perspective view of the assembled biosensor of Fig. 1. Accordingly, the generally flat cover of Fig. 1 is the same generally flat cover of Fig. 2.

The biosensor of the present invention takes advantage of surface irregularities of the cover 12 and the substrate and the thickness of the reagent to form the capillary channel. “Since cover 12 and substrate 14 inherently do not lie perfectly flat against one another, when portions 36 of cover 12 are coupled to substrate 14, small gaps/channels 40, 62, 64 are created by default between unsealed portions 38 and substrate 14”. See, page 4 lines 7-10. Figure 2 illustrates the unsealed portions 38, which create these small gaps/channels.

Accordingly, no amendments to the drawings are necessary, as the drawings comply with 37 CFR 1.84(p)(4). Withdrawal of the objection is respectfully requested.

Claims 13 and 16 are objected to under 37 CFR 1.75 as being substantial duplicates of claims 2 and 4, respectively. The objection is respectfully traversed.

Claims 2 and 4 depend from claim 1. Independent claim 1 requires “a channel extending across the reagent”. No such limitation appears in independent claim 13 or dependent claim 16. Claim 16 depends from claim 13. Accordingly, the claims are not duplicates nor do they both cover the same thing. Reconsideration of the objection leading to its withdrawal is respectfully requested.

Claims 7, 20 and 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite. Claim 7 has been amended to correct its dependency. Claim 20 has been amended to add the word capillary and to add the step of positioning a reagent on the substrate. Claim 21 depends from claim 20. The amendments to the claims add no new matter and are fully supported by the specification. The claims as amended are believed to be sufficiently definite for purposes of 35 U.S.C. 112, second paragraph. Reconsideration of the rejection in light of the amendments, leading to withdrawal of the rejection is requested.

Claims 1-3, 9, 10 and 12-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Charlton et al. (US 5,759,364). Charlton et al. discloses a sensor 34 made up of an insulating base 36 and an embossed lid 46. (Fig. 1). Claims 1 and 13 have each

been amended to state that at least a portion of the unscaled portion of the generally flat bottom side lies upon the reagent. Support for the amendment is found throughout the specification and particularly at page 3 lines 3-8, page 4 lines 6-15 and Figs. 3, 5, and 9. No new matter is added by virtue of the amendment.

The rejection proffers that Charlton et al. discloses "a cover . . . including a top side and a generally flat bottom side being coupled to the substrate to define a sealed portion and an unsealed portion, the unsealed portion cooperating with the substrate to define a channel across the reaction region (inherent from concave portion, 48, of the cover)". That proffer is respectfully traversed because the bottom surface of the lid 46 of Charlton et al. is not generally flat. Instead, the bottom surface is embossed to form a concave portion 48.

It is submitted that Charlton et al. is devoid of description or suggestion of a biosensor that comprises a cover with a generally flat bottom side that cooperates with the substrate to define a channel, as required by claims 1 and 13. Instead, the sensor of Charlton et al. uses an embossed lid. Rather than utilizing a flat sheet of material for the lid, Charlton et al. teaches that it is necessary to emboss such a flat sheet to form a concave space 48 in the lid 46. See, Col. 3 lines 12-14. It is the "use of the embossed lid [that] enables one to avoid the use of an extra part, i.e. the spacer, and a number of processing steps. See, Column 3 line 67 to Column 4 line 2.

Still further, Charlton et al. fails to disclose or suggest a biosensor that comprises at least a portion of an unsealed portion of a generally flat bottom side lying upon a reagent, as required by claims 1 and 13. The reagent layer 44 of Charlton et al. is printed onto the insulating base 36. Column 2 lines 50-55. The concave space 48 of the lid 46 appears to be spaced apart from the insulating base 36 and printed reagent layer 44. See, Fig. 1.

With this in mind, it becomes apparent that Charlton et al. fails to disclose or suggest a biosensor that comprises "substrate, a reagent . . . and a cover including . . . a generally flat bottom side . . . coupled to the substrate to define a sealed portion and an unsealed portion, at least a portion of the unsealed portion of the generally flat bottom side lying upon the reagent and cooperating with the substrate to define a channel

extending across the reagent.", as required by amended claim 1. Claims 2-3, 9, 10 and 12 depend from claim 1.

Charlton et al. also fails to disclose or suggest a biosensor that comprises "a substrate, a reagent . . . and a cover having a top side and a generally flat bottom side, and an opening extending between the top and bottom sides, the bottom side being coupled to the substrate to define a sealed portion and an unsealed portion, at least a portion of the unsealed portion of the generally flat bottom side lying upon the reagent and cooperating with the substrate to define a channel extending between the opening and the reagent", as required by claim 13. Claims 14 and 15 depend from claim 13.

Claims 1-3, 9, 10 and 12-15 are therefore not anticipated, nor are they disclosed or suggested by the cited reference and are believed to be patentable over Charlton et al. Reconsideration leading to withdrawal of the rejection is respectfully requested.

Claims 1-9, 12, 13 and 16-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Hodges et al. (US 6,174,420). As discussed above, claims 1 and 13 have each been amended to recite that at least a portion of the unsealed portion of the generally flat bottom side lies upon the reagent. Hodges et al. discloses a cell that includes a spacer sheet (1) with a sample receiving cell (11) within the spacer sheet (1), palladium layers (13, 14) in communication with the cell (11), and notches (16) punched for fluid communication with the cell (11).

It is submitted that the palladium layer (13) in Figure 15 does not include an unsealed portion, at least a portion of which lies upon a reagent positioned on a substrate. Instead, the layer (13) is spaced apart from the layer (14) by the spacer sheet (1) with a sample receiving cell (11) therein. Still further, it is submitted that the layer (13) is not coupled to the layer (14) to define a sealed portion and an unsealed portion, wherein the unsealed portion cooperates with the substrate to define a channel extending across the reagent. Rather, the layer (13) is coupled to the spacer (1) and it is the spacer (1) that has circular holes (11) punched therein. See, Column 3 line 24 to Column 4 line 26.

Therefore, there is no description or suggestion in Hodges et al. of a biosensor that comprises "a substrate, a reagent positioned on the substrate, and a cover including a top side and a generally flat bottom side, the bottom side being coupled to the substrate to define a sealed portion and an unsealed portion, at least a portion of the unsealed portion

of the generally flat bottom side lying upon the reagent and cooperating with the substrate to define a channel extending across the reagent", as required by amended claim 1.

Claims 2-9, and 12 depend from amended claim 1.

Likewise, Hodges et al. fails to disclose or suggest a biosensor that comprises "a substrate, a reagent . . . and a cover having a top side and a generally flat bottom side, and an opening extending between the top and bottom sides, the bottom side being coupled to the substrate to define a sealed portion and an unsealed portion, at least a portion of the unsealed portion of the generally flat bottom side lying upon the reagent and cooperating with the substrate to define a channel extending between the opening and the reagent", as required by amended claim 13. Claims 16-19 depend from claim 13.

Claims 1-9, 12, 13 and 16-19 are therefore not anticipated and are believed to be patentable over Hodges et al. Reconsideration leading to withdrawal of the rejection is respectfully requested.

Claims 1-3, 9, 10 and 12-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Uenoyama et al. (US 6,125,292). Uenoyama et al. discloses a sensor that includes a substrate (4) and a cover film (5). A gap is formed between the cover film (5) and the substrate (4) in the portion other than the edge of the cover film (5). This gap constitutes a capillary passage (1).

It is submitted that the cover film (5) of Uenoyama et al. lacks an unsealed portion of a generally flat bottom surface that lies upon a reagent. Instead, the cover film (5) is formed into a predetermined shape. See, Column 4 lines 54-55. A gap exists between the cover film (5) and the electrodes (2, 3). See, Column 4 lines 17-20 and Figs. 1B, 1C, 4B, and 5B. A reagent is arranged on the electrodes (2, 3). See, Column 4 lines 9-10.

Accordingly, there is no description or suggestion in Uenoyama et al. of a biosensor comprising "a substrate, a reagent positioned on the substrate, and a cover including a top side and a generally flat bottom side, the bottom side being coupled to the substrate to define a sealed portion and an unsealed portion, at least a portion of the unsealed portion of the generally flat bottom side lying upon the reagent and cooperating with the substrate to define a channel extending across the reagent", as required by amended claim 1. Claims 2-3, 9, 10 and 12 depend from claim 1.

Likewise, Uenoyama et al. fails to disclose or suggest a biosensor that comprises "a substrate, a reagent . . . and a cover having a top side and a generally flat bottom side, and an opening extending between the top and bottom sides, the bottom side being coupled to the substrate to define a sealed portion and an unsealed portion, at least a portion of the unsealed portion of the generally flat bottom side lying upon the reagent and cooperating with the substrate to define a channel extending between the opening and the reagent", as required by amended claim 13. Claims 14 and 15 depend from claim 13.

Claims 1-3, 9, 10 and 12-15 are therefore not anticipated and are believed to be patentable over Uenoyama et al. Reconsideration leading to withdrawal of the rejection is respectfully requested.

Claims 1-3, 9 and 13-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Ikeda et al. (EP 0964059 A2). Claims 1 and 13 have been amended as discussed above. Ikeda et al. discloses in Fig.1, a biosensor with a working electrode base plate (1), a counter electrode base plate (4) with a curved portion (6) bloated toward the outside, a reagent layer on the working electrode base plate (1), and an insulating member (7).

It is submitted that the counter electrode base plate (4) in Figure 1 does not include an unsealed portion, at least a portion of which lies upon a reagent positioned on a substrate. Instead, the counter electrode base plate (4) is spaced apart from the working electrode base plate (1), which supports the reagent layer, by the insulating member (7).

Therefore, there is no description or suggestion in Ikeda et al. of a biosensor that comprises "a substrate, a reagent positioned on the substrate, and a cover including a top side and a generally flat bottom side, the bottom side being coupled to the substrate to define a sealed portion and an unsealed portion, at least a portion of the unsealed portion of the generally flat bottom side lying upon the reagent and cooperating with the substrate to define a channel extending across the reagent", as required by amended claim 1. Claims 2-3 and 9 depend from amended claim 1.

Likewise, Ikeda et al. fails to disclose or suggest a biosensor that comprises "a substrate, a reagent . . . and a cover having a top side and a generally flat bottom side, and an opening extending between the top and bottom sides, the bottom side being coupled to the substrate to define a sealed portion and an unsealed portion, at least a portion of the unsealed portion of the generally flat bottom side lying upon the reagent and cooperating

with the substrate to define a channel extending between the opening and the reagent", as required by amended claim 13. Claims 14 and 15 depend from amended claim 13.

Claims 1-3, 9, and 13-15 are therefore not anticipated and are believed to be patentable over Ikeda et al. Reconsideration leading to withdrawal of the rejection is respectfully requested.

Claims 1 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bhullar et al. (US 6,319,719 B1). Bhullar et al. discloses a capillary hematocrit separation structure that includes a body (12) and a cover (14). See Fig. 1. A reaction region (20) is formed in the body (12) and includes a vent (21). A capillary pathway (24) has an outlet end (28) coupled to the reaction region (20). See, Column 3 lines 51-55.

The rejection proffers that Bhullar et al. do not directly mention an embodiment that has a reagent in the reaction region. The Examiner's attention is directed to claim 9 where an apparatus with a reaction region that contains a dry reagent is claimed. However, it is submitted that even when a reagent is positioned in said region (20), Bhullar et al. still fail to teach or suggest a biosensor as recited in amended claims 1 and 13.

As discussed above, claims 1 and 13 have each been amended to recite that at least a portion of the unsealed portion of the generally flat bottom side of the cover lies upon the reagent. As shown in Fig. 1, the reaction region (20) of the body (12) has a floor, which is spaced apart from the cover (14). Still further, it is submitted that the cover (14) is not coupled to a substrate to define a sealed portion and an unsealed portion, wherein the unsealed portion cooperates with the substrate to define a channel extending across the reagent. Rather, both the capillary pathway (24) and the reaction region (20) are formed in the base plate (12).

It is respectfully submitted that Bhullar et al. cannot be said to provide suggestion or motivation to be modified to meet the requirements of amended claim 1. Specifically, Bhullar provides no motivation or suggestion of a biosensor that comprises "a substrate, a reagent positioned on the substrate, and a cover including a top side and a generally flat bottom side, the bottom side being coupled to the substrate to define a sealed portion and an unsealed portion, at least a portion of the unsealed portion of the generally flat bottom side lying upon the reagent and cooperating with the substrate to define a channel

extending across the reagent", as required by amended claim 1. Claims 9-11 depend from amended claim 1.

It is respectfully contended that the differences between the claimed invention and the cited art are such that Applicants' invention as a whole would not have been obvious to one of ordinary skill in the art at the time the invention was made. It is respectfully contended that the claimed invention meets the test of patentability under 35 U.S.C. 103(a). Entry of the amendments leading to reconsideration of the rejection and allowance of the claims is respectfully requested.

Claims 1-3 and 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bhullar (EP 1098000 A2). Bhullar discloses a sensor 36 with a lid 32 that has inside surface 34 that is molded to define a channel 38 therein. See, Fig. 11-12.

It is submitted that Bhullar fails to teach or suggest a biosensor that has at least a portion of an unsealed portion of a generally flat bottom side lying upon a reagent, as recited in amended claims 1 and 13. The channel (38) of Bhullar is instead formed in a molded inside portion of the lid (32). The inside portion of the lid (32) is thereby spaced-apart from the set of metallic deposits (28).

There is simply no description or suggestion in Bhullar to one skilled in the art to modify that reference to meet the limitations of amended claims 1 and 13. Specifically, Bhullar provides no motivation or suggestion of a biosensor that comprises "a substrate, a reagent positioned on the substrate, and a cover including a top side and a generally flat bottom side, the bottom side being coupled to the substrate to define a sealed portion and an unsealed portion, at least a portion of the unsealed portion of the generally flat bottom side lying upon the reagent and cooperating with the substrate to define a channel extending across the reagent", as required by amended claim 1. Claims 2-3 and 9-12 depend from amended claim 1.

Likewise, Bhullar et al. fails to disclose or suggest a biosensor that comprises "a substrate, a reagent . . . and a cover having a top side and a generally flat bottom side, and an opening extending between the top and bottom sides, the bottom side being coupled to the substrate to define a sealed portion and an unsealed portion, at least a portion of the unsealed portion of the generally flat bottom side lying upon the reagent and cooperating

with the substrate to define a channel extending between the opening and the reagent", as required by amended claim 13.

It is respectfully contended that the differences between the claimed invention and the cited art are such that Applicants' invention as a whole would not have been obvious to one of ordinary skill in the art at the time the invention was made. It is respectfully contended that the claimed invention meets the test of patentability under 35 U.S.C. 103(a). Entry of the amendments leading to reconsideration of the rejection and allowance of the claims is respectfully requested.

Claims 2, 3, 7, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bhullar et al. (US 6,319,719 B1) in view of Uenoyama et al. (US 6,125,292) and Bhullar (EP 1098000 A2). Bhullar et al., Uenoyama et al. and Bhullar have each been discussed above with reference to amended claims 1 and 13.

It is submitted that Bhullar et al. in combination with Uenoyama et al. and Bhullar fail to disclose or suggest the biosensors of amended claims 1 and 13. As discussed above, the biosensors of Bhullar et al., Uenoyama et al., and Bhullar each fail to disclose or suggest "a substrate, a reagent positioned on the substrate, and a cover including a top side and a generally flat bottom side, the bottom side being coupled to the substrate to define a sealed portion and an unsealed portion, at least a portion of the unsealed portion of the generally flat bottom side lying upon the reagent and cooperating with the substrate to define a channel extending across the reagent", as required by amended claim 1. Claims 2, 3, and 7 depend from amended claim 1.

Likewise, Bhullar et al. fails to disclose or suggest a biosensor that comprises "a substrate, a reagent . . . and a cover having a top side and a generally flat bottom side, and an opening extending between the top and bottom sides, the bottom side being coupled to the substrate to define a sealed portion and an unsealed portion, at least a portion of the unsealed portion of the generally flat bottom side lying upon the reagent and cooperating with the substrate to define a channel extending between the opening and the reagent", as required by amended claim 13. Uenoyama et al. and Bhullar either alone or in combination with one another fail to cure the inadequacies of Bhullar et al.

It is respectfully contended that the differences between the claimed invention and the cited art are such that Applicants' invention as a whole would not have been obvious



to one of ordinary skill in the art at the time the invention was made. It is respectfully contended that the claimed invention meets the test of patentability under 35 U.S.C. 103(a). Entry of the amendments leading to reconsideration of the rejection and allowance of the claims is respectfully requested.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Charlton et al. (US 5,759,364). Charlton et al. has been discussed above with reference to amended claim 1. As discussed above, there is simply no description or suggestion in Charlton et al. to one skilled in the art to modify that reference to meet the limitations of amended claim 1. Claim 11 depends from amended claim 1.

It is respectfully contended that the differences between the claimed invention and the cited art are such that Applicants' invention as a whole would not have been obvious to one of ordinary skill in the art at the time the invention was made. It is respectfully contended that the claimed invention meets the test of patentability under 35 U.S.C. 103(a). Reconsideration of the rejection and allowance of the claim is respectfully requested.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hodges et al. (US 6,173,420 B1). Hodges et al. has been discussed above with reference to amended claim 1. As discussed above, there is simply no description or suggestion in Hodges et al. to one skilled in the art to modify that reference to meet the limitations of amended claim 1. Claim 11 depends from amended claim 1.

It is respectfully contended that the differences between the claimed invention and the cited art are such that Applicants' invention as a whole would not have been obvious to one of ordinary skill in the art at the time the invention was made. It is respectfully contended that the claimed invention meets the test of patentability under 35 U.S.C. 103(a). Reconsideration of the rejection and allowance of the claim is respectfully requested.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Uenoyama et al. (US 6,125,292). Uenoyama et al. has been discussed above with reference to amended claim 1. As discussed above, there is simply no description or suggestion in Uenoyama et al. to one skilled in the art to modify that reference to meet the limitations of amended claim 1. Claim 11 depends from amended claim 1.

It is respectfully contended that the differences between the claimed invention and the cited art are such that Applicants' invention as a whole would not have been obvious to one of ordinary skill in the art at the time the invention was made. It is respectfully contended that the claimed invention meets the test of patentability under 35 U.S.C. 103(a). Reconsideration of the rejection and allowance of the claim is respectfully requested.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda et al. (EP 0964059 A2). Ikeda et al. has been discussed above with reference to amended claim 1. As discussed above, there is simply no description or suggestion in Ikeda et al. to one skilled in the art to modify that reference to meet the limitations of amended claim 1. Claim 11 depends from amended claim 1.

It is respectfully contended that the differences between the claimed invention and the cited art are such that Applicants' invention as a whole would not have been obvious to one of ordinary skill in the art at the time the invention was made. It is respectfully contended that the claimed invention meets the test of patentability under 35 U.S.C. 103(a). Reconsideration of the rejection and allowance of the claim is respectfully requested.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda et al. (EP 0964059 A2) in view of Uenoyama et al. (US 6,125,292) in view of Charlton et al. (US 5,759,364). Ikeda et al., Uenoyama et al., and Charlton et al. have each been discussed above with reference to amended claim 1. As discussed above, there is simply no description or suggestion in Ikeda et al. to one skilled in the art to modify that reference to meet the limitations of amended claim 1. Uenoyama et al. and Charlton et al. fail to cure the inadequacies of Ikeda et al. Claim 12 depends from amended claim 1.

It is respectfully contended that the differences between the claimed invention and the cited art are such that Applicants' invention as a whole would not have been obvious to one of ordinary skill in the art at the time the invention was made. It is respectfully contended that the claimed invention meets the test of patentability under 35 U.S.C. 103(a). Reconsideration of the rejection and allowance of the claim is respectfully requested.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bhullar et al. (US 6,319,719 B1) in view of Uenoyama et al. (US 6,125,292) in view of Charlton et al. (US 5,759,364). Bhullar et al., Uenoyama et al. and Charlton et al. have each been discussed above with reference to amended claim 1. As discussed above, there is simply no description or suggestion in Bhullar et al. to one skilled in the art to modify that reference to meet the limitations of amended claim 1. Uenoyama et al., and Charlton et al. simply fail to cure the inadequacies of Bhullar et al. Claim 12 depends from amended claim 1.

It is respectfully contended that the differences between the claimed invention and the cited art are such that Applicants' invention as a whole would not have been obvious to one of ordinary skill in the art at the time the invention was made. It is respectfully contended that the claimed invention meets the test of patentability under 35 U.S.C. 103(a). Reconsideration of the rejection and allowance of the claim is respectfully requested.

Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Charlton et al. (US 5,759,364) in view of Dunn et al. (US 6,326,160 B1) and Petrie ("Handbook of Adhesives and Sealants," McGraw-Hill, 2000, p. 279-284).

Claim 20 has been amended to recite that the method comprises the step of "placing the adhesive-coated bottom surface on the substrate so that at least a portion of the thermoset adhesive is positioned on the reagent". Support for the amendment is found throughout the specification and particularly at page 1 lines 33-34, page 3 lines 3-8, page 4 lines 6-15, page 12 lines 8-14, and Figs. 3, 5, and 9. No new matter is added by virtue of the amendment.

The specifics of Charlton et al. have been discussed above with reference to amended claims 1 and 13. It is submitted that Charlton et al. is devoid of description or suggestion of a method that comprises placing the adhesive-coated bottom surface on the substrate so that at least a portion of the thermoset adhesive is positioned on the reagent, as required by amended claim 20. Instead, the sensor of Charlton et al. uses an embossed lid. The concave space 48 of the lid 46 appears to be spaced apart from the insulating base 36 and printed reagent layer 44. See, Fig. 1.

The rejection proffers that Dunn et al. teach that adhesive may be used alternatively to lamination to form a biosensor and that Petrie discloses that a thermoset adhesive is a commonly used structural adhesive that has good heat and solvent resistances. See, Paper 6, Page 24. Dunn et al. discloses a method and device for measuring the concentration of an analyte. Sampling by Dunn et al. is carried out by extracting glucose through the skin using an iontophoretic current. When the current is applied to a surface of the skin, ions or charged molecules pull along other uncharged molecules or particles such as glucose that are drawn into a collection reservoir (4, 6) placed on the surface of the skin. The collection reservoir may comprise any ionically conductive material (8, 10).

There is simply no disclosure or suggestion in Dunn et al. of a method comprising the steps of: "positioning a reagent on the substrate . . . placing the adhesive-coated bottom surface on the substrate so that at least a portion of the thermoset adhesive is positioned on the reagent, and heating portions of the thermoset adhesive to couple the bottom side to the substrate to define a sealed portion and an unsealed portion, the unsealed portion cooperating with the substrate to define a capillary channel extending across the reagent", as required by amended claim 20. It is submitted that there is nothing in Dunn et al. or Petrie alone or in combination with one another that would cure the inadequacies of Charlton et al. Claim 21 depends from claim 20.

It is respectfully contended that the differences between the claimed invention and the cited art are such that Applicants' invention as a whole would not have been obvious to one of ordinary skill in the art at the time the invention was made. It is respectfully contended that the claimed invention meets the test of patentability under 35 U.S.C. 103(a). Reconsideration of the rejection in light of the amendments leading to withdrawal of the rejection and allowance of the claims is respectfully requested.

Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hodges et al. (US 6,174,420 B1) in view of Dunn et al. (US 6,326,160 B1) and Petrie ("Handbook of Adhesives and Sealants," McGraw-Hill, 2000, p. 279-284). Hodges et al. has been discussed above with reference to amended claims 1 and 13.

As previously discussed, claim 20 has been amended to recite that the method comprises the step of "placing the adhesive-coated bottom surface on the substrate so that

at least a portion of the thermoset adhesive is positioned on the reagent". Claims 21 depends from claim 20. The rejection proffers that Hodges et al. teach "attaching the cover to the substrate with adhesive to form a sealed portion as claimed, but do not mention whether the adhesive is a thermoset adhesive. See layers 3 in Figure 15 and col. 4, ll. 26-37." Paper 6, page 24.

It is submitted that none of the palladium layers (13) in Fig. 15 of Hodges et al. have an adhesive-coated bottom surface positioned on a reagent. Instead, the layers (13) are spaced apart from one another by the spacer sheet (1) with a sample receiving cell (11) therein. Dunn et al. and Petrie have been discussed above and disclose nothing that would cure the inadequacies of Hodges et al.

It is respectfully contended that the differences between the claimed invention and the cited art are such that Applicants' invention as a whole would not have been obvious to one of ordinary skill in the art at the time the invention was made. It is respectfully contended that the claimed invention meets the test of patentability under 35 U.S.C. 103(a). Reconsideration of the rejection in light of the amendments leading to withdrawal of the rejection and allowance of the claims is respectfully requested.

Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uenoyama et al. (US 6,125,292) in of Dunn et al. (US 6,326,160 B1) and Petrie ("Handbook of Adhesives and Sealants," McGraw-Hill, 2000, p. 279-284).

Particulars of Uenoyama et al. have been discussed above with reference to amended claims 1 and 13. As previously discussed, claim 20 has been amended to recite that the method comprises the step of "placing the adhesive-coated bottom surface on the substrate so that at least a portion of the thermoset adhesive is positioned on the reagent". Claim 21 depends from claim 20. The rejection proffers that Uenoyama et al. teach "attaching the substrate with adhesive to form a sealed portion as claimed, but do not mention whether the adhesive is a thermoset adhesive. See, col. 4, ll. 54-59." Paper 6, Page 25.

It is submitted that the cover film (5) of Uenoyama et al. lacks an adhesive-coated bottom surface placed on the substrate so that at least a portion of the thermoset adhesive is positioned on the reagent, let alone heating portions of the adhesive to define sealed and unsealed portions, the unsealed portions extending across the reagent. Rather,

Uenoyama et al. discloses forming its cover film (5) into a predetermined shape. See, Column 4 lines 54-55. A gap exists between the cover film (5) and the electrodes (2, 3). See, Column 4 lines 17-20 and Figs. 1B, 1C, 4B, and 5B. Dunn et al. and Petrie have been discussed above and disclose nothing that would cure the inadequacies of Hodges et al.

It is respectfully contended that the differences between the claimed invention and the cited art are such that Applicants' invention as a whole would not have been obvious to one of ordinary skill in the art at the time the invention was made. It is respectfully contended that the claimed invention meets the test of patentability under 35 U.S.C. 103(a). Reconsideration of the rejection in light of the amendments leading to withdrawal of the rejection and allowance of the claims is respectfully requested.

Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda et al. (EP 0964059 A2) in view of Uenoyama et al. (US 6,125,292), Charlton et al. (US 5,759,364), Dunn et al. (US 6,326,160 B1), and Petrie ("Handbook of Adhesives and Sealants," McGraw-Hill, 2000, pp. 279-284).

Particulars of Ikeda et al. have been discussed above with reference to claims 1 and 13. As previously discussed, claim 20 has been amended to recite that the method comprises the step of "placing the adhesive-coated bottom surface on the substrate so that at least a portion of the thermoset adhesive is positioned on the reagent". Claim 21 depends from claim 20.

It is submitted that the counter electrode base plate (4) of Ikeda et al. lacks an adhesive-coated bottom surface placed on the substrate so that at least a portion of the thermoset adhesive is positioned on the reagent, let alone heating portions of the adhesive to define sealed and unsealed portions, the unsealed portions extending across the reagent. Instead, the counter electrode base plate (4) of Ikeda et al. is spaced apart from the working electrode base plate (1), which supports the reagent layer, by the insulating member (7). Uenoyama et al., Charlton et al., Dunn et al., and Petrie have each been discussed above with reference to claims 20 and 21 and disclose nothing, which would cure the inadequacies of Ikeda et al.

It is respectfully contended that the differences between the claimed invention and the cited art are such that Applicants' invention as a whole would not have been obvious

to one of ordinary skill in the art at the time the invention was made. It is respectfully contended that the claimed invention meets the test of patentability under 35 U.S.C. 103(a). Reconsideration of the rejection in light of the amendments leading to withdrawal of the rejection and allowance of the claims is respectfully requested.

Claim 12 is rejected under 35 U.S.C. 03(a) as being unpatentable over Ikeda et al. (EP 096059 A2) in view of Uenoyama et al. (US 6,125,292) in view of Charlton et al. (US 5,759,364). This rejection appears to be a duplicate of the rejection proffered as numeral 19 in the Office Action. Accordingly, for the reasons stated above, it is respectfully contended that the claimed invention meets the test of patentability under 35 U.S.C. 103(a). Reconsideration of the rejection and allowance of the claim is respectfully requested.

Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bhullar (EP 1098000 A2) in view of Dunn et al. (US 6,326,160 B1) and Petrie ("Handbook of Adhesives and Sealants," McGraw-Hill, 2000, pp. 279-284). Particulars of Bhullar have been discussed above with reference to amended claims 1 and 13. As previously discussed, claim 20 has been amended to recite that the method comprises the step of "placing the adhesive-coated bottom surface on the substrate so that at least a portion of the thermoset adhesive is positioned on the reagent".

It is submitted that Bhullar fails to teach or suggest a method recited by amended claim 20. Specifically, the channel (38) of Bhullar is formed in a molded inside portion of the lid (32). The inside portion of the lid (32) is thereby spaced-apart from the set of metallic deposits (28). Uenoyama et al., Charlton et al., Dunn et al., and Petrie have each been discussed above with reference to claims 20 and 21 and disclose nothing, which would cure the inadequacies of Bhullar.

It is respectfully contended that the differences between the claimed invention and the cited art are such that Applicants' invention as a whole would not have been obvious to one of ordinary skill in the art at the time the invention was made. It is respectfully contended that the claimed invention meets the test of patentability under 35 U.S.C. 103(a). Reconsideration of the rejection in light of the amendments leading to withdrawal of the rejection and allowance of the claims is respectfully requested.

Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bhullar (US 6,319,719) in view of Uenoyama et al. (US 6,125,292), Charlton et al. (US 5,759,364), Dunn et al. (US 6,326,160 B1) and Petrie ("Handbook of Adhesives and Sealants," McGraw-Hill, 2000, pp. 279-284). Claim 21 depends from claim 20.

Particulars of Bhullar et al. have been discussed above with reference to claims 1 and 13. As previously discussed, claim 20 has been amended to recite that the method comprises the step of "placing the adhesive-coated bottom surface on the substrate so that at least a portion of the thermoset adhesive is positioned on the reagent".

It is submitted that Bhullar et al. fails to disclose or suggest the method of amended claim 20. Particularly, as shown in Fig. 1, the reaction region (20) of the body (12) has a floor, which is spaced apart from the cover (14). Uenoyama et al., Charlton et al., Dunn et al., and Petrie have each been discussed above with reference to claims 20 and 21 and disclose nothing, which would cure the inadequacies of Ikeda et al.

It is respectfully contended that the differences between the claimed invention and the cited art are such that Applicants' invention as a whole would not have been obvious to one of ordinary skill in the art at the time the invention was made. It is respectfully contended that the claimed invention meets the test of patentability under 35 U.S.C. 103(a). Reconsideration of the rejection in light of the amendments leading to withdrawal of the rejection and allowance of the claims is respectfully requested.

The claims are believed to be in condition for allowance, and allowance of the application is respectfully requested. It is requested that this paper be considered a Petition for Extension of time sufficient to effect a timely response, and that all fees due be charged to Deposit Account Number 02-2958 with reference to (RDID 0030 US).

Respectfully submitted,  
The Law Office of Jill L. Woodburn, L.L.C.

January 6, 2003

(Date)

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Version with Markings to Show Changes Made

1. (Amended) A biosensor comprising:  
a substrate,  
a reagent positioned on the substrate, and  
a cover including a top side and a generally flat bottom side, the bottom side being coupled to the substrate to define a sealed portion and an unsealed portion, at least a portion of the unsealed portion of the generally flat bottom side lying upon the reagent and cooperating with the substrate to define a channel extending across the reagent.
7. (Amended) The biosensor of claim [1] 2, wherein the cover includes a second opening that is aligned with the reagent.
13. (Amended) A biosensor comprising:  
a substrate,  
a reagent positioned on the substrate, and  
a cover having a top side and a generally flat bottom side, and an opening extending between the top and bottom sides, the bottom side being coupled to the substrate to define a sealed portion and an unsealed portion,  
at least a portion of the unsealed portion of the generally flat bottom side lying upon the reagent and cooperating with the substrate to define a channel extending between the opening and the reagent.
20. (Amended) A method of forming a biosensor having a capillary channel, the method comprising the steps of:  
providing a substrate,  
positioning a reagent on the substrate,  
providing a cover having a top surface and a bottom surface,  
placing a thermoset adhesive on the bottom surface of the cover,  
placing the adhesive-coated bottom surface on the substrate so that at least a portion of the thermoset adhesive is positioned on the reagent, and  
heating portions of the thermoset adhesive to couple the bottom side to the substrate to define a sealed portion and an unsealed portion, the unsealed portion cooperating with the substrate to define a capillary channel extending across the reagent.